NON-PUBLIC?: N
ACCESSION #: 9006180193
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Millstone Nuclear Power Station Unit 2 PAGE: 1 OF 3

DOCKET NUMBER: 05000336

TITLE: Manual Reactor Trip on Steam Generator 1 Low Level
EVENT DATE: 05/08/90 LER #: 90-006-00 REPORT DATE: 06/07/90

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Richard C. Bonner, Engineering TELEPHONE: (203) 447-1791
Supervisor, Ext. 5230

COMPONENT FAILURE DESCRIPTION:
CAUSE: B SYSTEM: SJ COMPONENT: LCV MANUFACTURER: C635
REPORTABLE NPRDS: Yes

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On May 8, 1990 at 00:49 hours with the Unit in MODE 1 at 100% power, plant operators manually tripped the reactor due to decreasing levels in the #1 steam generator. The secondary plant operator observed a rapidly decreasing level in the #1 steam generator, with the feedwater regulating valve, 2-FW-51A, indicating full open. With control of main feed flow to #1 steam generator apparently lost and since steam generator level was decreasing, the unit was manually tripped. Operators then performed EOP 2525, "Standard Post Trip Actions" and EOP 2526, "Reactor Trip Recovery". All equipment responded as expected and the unit was placed in a stable condition. Main feed flow to the #1 steam generator was restored and controlled with the feedwater regulating bypass valve, 2-FW-41A. The #1 feedwater regulating valve, 2-FW-51A, was disassembled and inspected. During the disassembly it was discovered that the stem had separated from the plug. This event is being reported pursuant to the requirements of paragraph 50.73(a)(2)(iv) due to the manual reactor trip on decreasing

steam generator level.

Similar LER's : 87-009

END OF ABSTRACT

I. Description of Event

On May 8, 1990 at 00:49 hours with the Unit in MODE 1 at 100% power, plant operators manually tripped the reactor due to decreasing levels in the #1 steam generator. The secondary plant operator observed a rapidly decreasing level in the #1 steam generator, with the feedwater regulating valve, 2-FW-51A, indicating full open. With control of main feed flow to #1 steam generator apparently lost and since steam generator level was decreasing, the unit was manually tripped. Operators then performed EOP 2525, "Standard Post Trip Actions" and EOP 2526, "Reactor Trip Recovery". All equipment responded as expected and the unit was placed in a stable condition. Main feed Flow to the #1 steam generator was restored and controlled with the feedwater regulating bypass valve, 2-FW-41A. No other systems were affected.

Prior to the trip, feed flow to the #2 steam generator was controlled by manual operation of the #2 feedwater regulating valve, 2-FW-51B, and feedwater regulating bypass valve, 2-FW-41B, because automatic operation of 2-FW-51B had become erratic. The #1 feedwater regulating valve remained in automatic operation.

The unit was subsequently taken to Cold Shutdown and remains in Cold Shutdown for maintenance and inspection unrelated to the feedwater regulating valve failure.

II. Cause of Event

The #1 feedwater regulating valve was disassembled and inspected. During the disassembly it was discovered that the valve plug had separated from the stem and had been forced by feedwater flow into the shut position. The valve stem is threaded into the plug and secured with a roll pin. Upon disassembly, the stem threads were found stripped and the roll pin sheared. No loose parts were released to the feedwater system. Based on the results of a visual and dimensional inspection, the root cause of the failure has been determined to be a machining error associated with the stem and plug tapered fit. As a result of a poor fit, insufficient preload was

applied to the connection which then subjected the stem threads and roll pin to excessive vibration, fatigue and eventual failure.

The #2 feedwater regulating valve was also disassembled and inspected. The stem/plug roll pin was found intact, however the threaded connection was found to be loose.

A similar failure of a feedwater regulating valve stem and plug connection caused an automatic reactor trip on September 2, 1987. In that event, reported in LER 87-009, the stem/plug roll pin was noted to be missing from the connection allowing the stem to unthread from the plug. The root cause of the event was determined to be the loss of the roll pin during operation or lack of the pin at assembly. The valve overhaul procedure was revised at that time to require that the roll pin be staked to prevent it from becoming dislodged. Also, a preventive maintenance program was initiated to overhaul the valves every refueling. This proved to be an effective method of preventing loose parts in this event.

III. Analysis of Event

This event is being reported pursuant to the requirements of paragraph 50.73(a)(2)(iv) due to the manual reactor trip on decreasing steam generator level.

There were no safety consequences from this reactor trip since all safety systems functioned to restore the unit to a stable condition. All equipment responded as expected and plant operators executed applicable Emergency Operating Procedures accordingly.

IV. Corrective Action

Immediate action was taken to restore feedwater flow to the #1 steam generator via the feedwater regulating bypass valve and to assure that all plant equipment functioned properly and the plant was in a safe condition.

As an action to prevent recurrence of the event, the feedwater regulating valve overhaul procedure was revised to add dimensional checks of the stem and plug connection prior to assembly. Also, the stem installation torque was increased and the connection secured with a high temperature retaining compound. In addition, a design change to both feedwater regulating valves was implemented, replacing the hollow stem/plug roll pin with a solid taper pin.

V. Additional Information

Attachment: Feedwater Regulating Valve
Drawing

Feedwater Regulating Valve Copes - Vulcan
Manufacturer:

Model: P-200-12 Angle

Size: 12 inch 900#

EIIS Code: SJ-LCV-C635

Similar Events: 87-009

ATTACHMENT 1 TO 9006180193 PAGE 1 OF 2

LER 90-006-90
Attachment
Page 1 of 1

Attachment to LER 90-006 Rev. 0
Docket Number 05000336

Figure "Feedwater Regulating Valve" omitted.

ATTACHMENT 1 TO 9006180193 PAGE 2 OF 2

The Connecticut Light And Power Company
Western Massachusetts Electric Company
Holyoke Water Power Company
Northeast Utilities Service Company
Northeast Nuclear Energy Company

General Offices o Selden Street, Berlin Connecticut

P. O. BOX 270
HARTFORD, CONNECTICUT 06414-0270
(203)665-5000

June 7, 1990
MP-90-558
Re: 10CFR50.73(a)(2)(iv)

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Reference: Facility Operating License No. DPR-65
Docket No. 50-336
Licensee Event Report 90-006-00

Gentlemen:

This letter forwards Licensee Event Report 90-006-00 required to be submitted within thirty (30) days pursuant to paragraph 50.73(a)(2)(iv).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

Stephen E. Scace
Director, Millstone Station

SES/RCB:mo

Attachment: LER 90-006-00

cc: T. T. Martin, Region I Administrator
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2

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